

Appendix E, Project 05, Items 5A - 5P

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE - REGION ONE

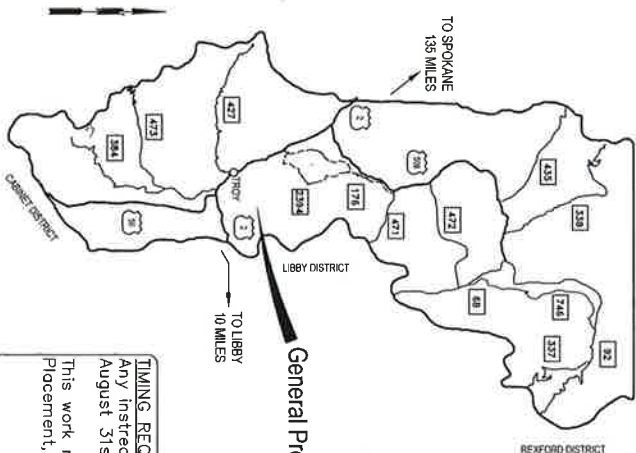
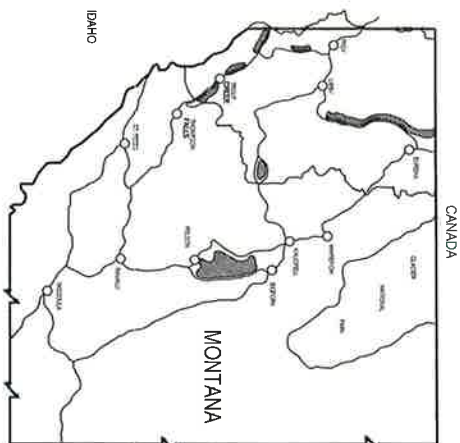
ONLY MOLY STEWARDSHIP PLANS FOR

MANDATORY ROAD MAINTENANCE AND REPAIRS

LINCOLN COUNTY, MONTANA

Lynx Creek

Road Maintenance KOOTENAI NATIONAL FOREST THREE RIVERS RANGER DISTRICT



General Project Location

TO SPOKANE
135 MILES

TO LIBBY
10 MILES

| | |
|--|-----------------|
| PREPARED BY <i>[Signature]</i> PROJECT ENGINEER | 8/23/16 DATE |
| REVIEWED BY <i>[Signature]</i> ZONE ENGINEERING TEAM LEADER | 8/23/16 DATE |
| MULTIPLE RESOURCE REVIEW BY: <i>[Signature]</i> DISTRICT RANGER | 8-31-16 DATE |
| I certify that this project has been designed in accordance with sound engineering practices. <i>[Signature]</i> FOREST ENGINEER | 9/2/16 DATE |

TIMING REQUIREMENTS:
Any instream work on live, perennial streams must occur between July 15th to August 31st.
This work may occur before or simultaneously with Project 18 Road Material Placement, but not after.

INDEX

| SHEET DESCRIPTION | PAGE NO. |
|--------------------------------|----------|
| Title Sheet | 1 |
| Project Map | 2 |
| Quantities & Notes | 3 |
| Road Logs | 4-6 |
| Culvert Construction Detail | 7 |
| Typical Section & Berm Details | 8 |
| Drain Dip Detail | 9 |

| SHEET NUMBER | TOTAL SHEETS |
|--------------|--------------|
| 1 | 9 |

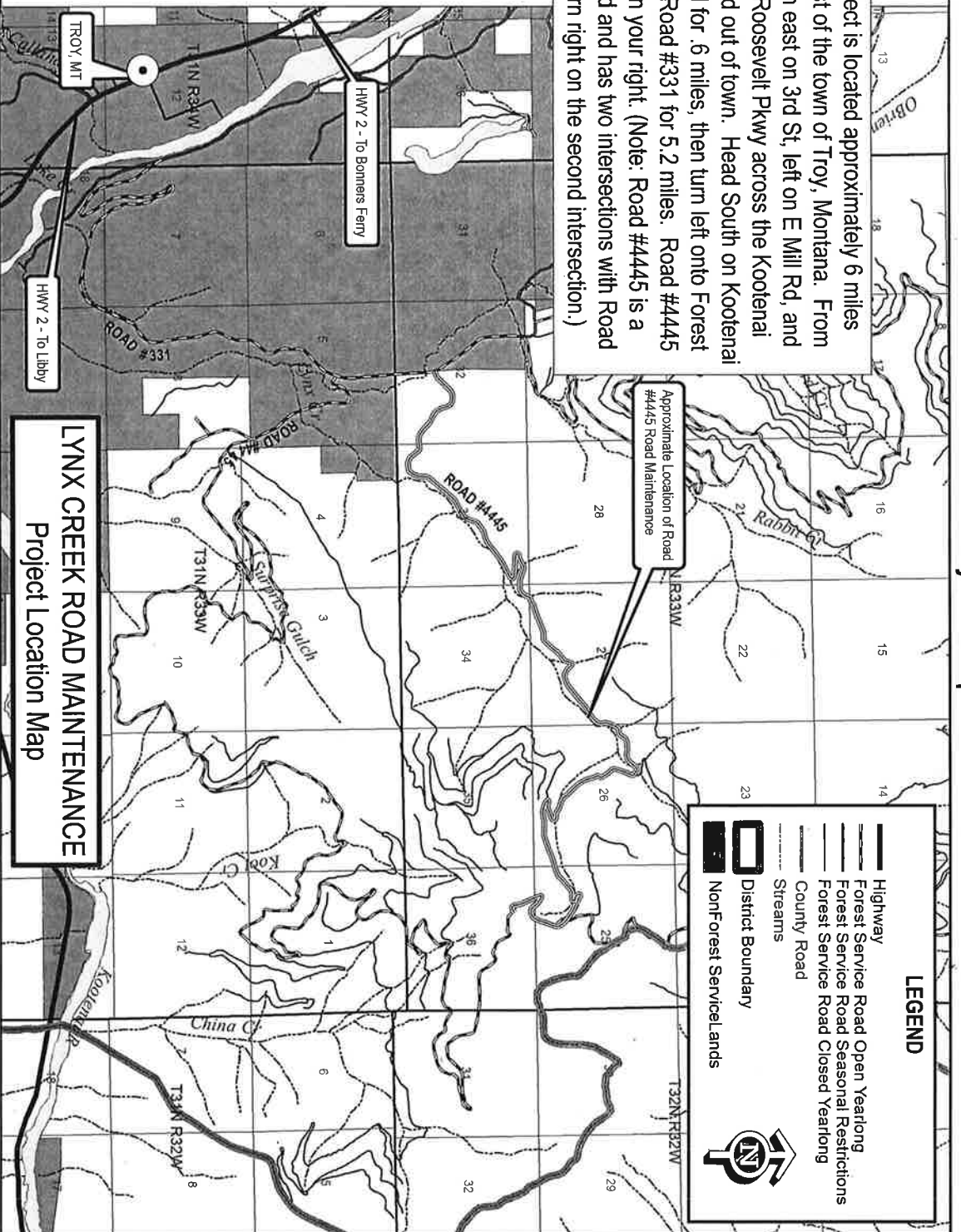
Project Map

The project is located approximately 6 miles northeast of the town of Troy, Montana. From Troy turn east on 3rd St, left on E Mill Rd, and right on Roosevelt Pkwy across the Kootenai River and out of town. Head South on Kootenai River Rd for .6 miles, then turn left onto Forest Service Road #331 for 5.2 miles. Road #4445 will be on your right. (Note: Road #4445 is a loop road and has two intersections with Road #331; turn right on the second intersection.)

Approximate location of Road #4445 Road Maintenance

LEGEND

- Highway
- Forest Service Road Open Yearlong
- Forest Service Road Seasonal Restrictions
- Forest Service Road Closed Yearlong
- County Road
- Streams
- District Boundary
- NonForest Service Lands



LYNX CREEK ROAD MAINTENANCE Project Location Map

LYNX CREEK ROAD MAINTENANCE

| SHEET NUMBER | TOTAL SHEETS |
|-----------------|-----------------|
| 2 | 9 |

Summary of Quantities & General Notes

| PROJECT ITEM NO. | PAY ITEM NO. | ITEM DESCRIPTION | METHOD OF MEASURE | UNIT OF MEASURE | QUANTITY |
|---------------------|-----------------|---|----------------------|--------------------|----------|
| 5A | 15101 | MOBILIZATION | LSQ | LS | ALL |
| 5B | 20301 | REMOVAL OF CULVERTS | AQ | EA | 3 |
| 5C | 20301 | REMOVAL OF SURFACE WATER DEFLECTORS | AQ | EA | 1 |
| 5D | 20419 | DRAINAGE EXCAVATION, DITCH CONSTRUCTION | AQ | LF | 250 |
| 5E | 20419 | DRAINAGE EXCAVATION, BERM, COMPACTION METHOD F | AQ | LF | 200 |
| 5F | 20420 | DRAINAGE EXCAVATION, CONSTRUCT DRAIN DIP, COMPACTION METHOD E | AQ | EA | 16 |
| 5G | 20420 | DRAINAGE EXCAVATION, RECONSTRUCT DRAIN DIP, COMPACTION METHOD E | AQ | EA | 24 |
| 5H | 20482 | ROADWAY EXCAVATION, REMOVAL OF DRAIN DIP, COMPACTION METHOD E | AQ | EA | 2 |
| 5I | 23050 | ROADWAY BRUSHING | CQ | MI | 6.6 |
| 5J | 30357 | ROADWAY RECONDITIONING, COMPACTION METHOD B | AQ | MI | 4.5 |
| 5K | 30801 | ROADWAY AGGREGATE, COMPACTION METHOD B | CQ | CY | 60 |
| 5L | 60250 | 18" CSP, 16 GAUGE, INCLUDES EXCAVATION, COMPACTION METHOD B | AQ | FT | 38 |
| 5M | 60250 | 24" CSP, 16 GAUGE, INCLUDES EXCAVATION, COMPACTION METHOD B | AQ | FT | 104 |
| 5N | 60253 | 42" x 29" CSP, 16 GAUGE, INCLUDES EXCAVATION, COMPACTION METHOD B | AQ | FT | 54 |
| 5O | 62201 | EQUIPMENT RENTAL, HYDRAULIC EXCAVATOR WITH THUMB | AQ | HR | 10 |
| 5P | 62201 | EQUIPMENT RENTAL, 10 YARD DUMP TRUCK | AQ | HR | 10 |

GENERAL NOTES:

- THIS PROJECT CONSISTS OF MULTIPLE BMP IMPROVEMENTS THAT WILL HELP THE WATERSHED FROM SEDIMENT DEPOSITION AND THE ROAD BY DECREASING THE AMOUNT OF RUNOFF ON THE ROAD SURFACE.
 - CONSTRUCT THE PROJECT IN COMPLIANCE WITH FEDERAL HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP-403) AND APPLICABLE FOREST SERVICE SUPPLEMENTAL SPECIFICATIONS (FSSS) FOUND IN THE MASTER STEWARDSHIP AGREEMENT.
 - TEMPORARY TRAFFIC CONTROL IS INCIDENTAL TO PAY ITEM 15101. ALL SIGNS MUST BE MANUFACTURED AND INSTALLED AS SPECIFIED IN THE FHWA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND FS PUBLICATION STANDARDS FOR FOREST SERVICE SIGNS AND POSTERS (EM 7100-15).
 - ITEM 20301 REMOVAL OF CULVERTS REFERS TO EXISTING WOOD STAVE CULVERTS FLAGGED FOR REPLACEMENT. DISPOSAL SHALL BE OFF FEDERAL LANDS. BURNING IS NOT AN ACCEPTABLE METHOD OF DISPOSAL.
 - ITEM 20301 REMOVAL OF SURFACE WATER DEFLECTORS SHALL BE IN SUCH A MANNER TO PREVENT DAMAGE TO THE STRUCTURE. SURFACE WATER DEFLECTORS SHALL REMAIN PROPERTY OF THE GOVERNMENT, AND ARE TO BE HAULED TO THE EL VANTITE GOVERNMENT ADMINISTRATION SITE BY THE CONTRACTOR AFTER SUCCESSFUL REMOVAL.
 - ITEM 20419 SHALL BE BUILT IN SUCH A MANNER THAT THE OUTSLOPED ROAD SURFACE WILL NOT DRAIN DIRECTLY INTO THE DRAIN IN WHICH IT IS MEANT TO PROTECT.
 - ITEMS 62201 SHALL BE CONSIDERED FOR WORK BEYOND WHAT IS LISTED IN THE SCHEDULE OR CONSIDERED INCIDENTAL TO WORK LISTED IN THE SCHEDULE OR ROAD LOG. THE GOVERNMENT RESERVES THE RIGHT TO EXERCISE THE OPTIONAL EQUIPMENT RENTAL BY THE END OF THE PROJECT.
- ITEMS 60250 & 60253 SHALL INCORPORATE AVAILABLE SLASH INTO THE LAST 6" OF FILL ALONG THE FILL SLOPE OF NEW CULVERT INSTALLATIONS. CONTRACTOR SHALL SUBMIT A DEWATERING PLAN AND EROSION CONTROL PLAN TO THE CO IN WRITING PRIOR TO THE START OF WORK. FINAL ALIGNMENT AND BEDDING MUST BE APPROVED BY CO PRIOR TO BACKFILLING. SEE SHEET 7 FOR DETAIL.
 - FINAL LOCATION OF WORK ITEMS WILL BE MARKED BY THE GOVERNMENT WITH WOODEN STAKES PRIOR TO THE START OF WORK.
 - ALL ITEMS OF REQUIRED WORK NOT FOUND IN THE SUMMARY OF QUANTITIES ABOVE SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION AND WILL NOT BE PAID OUT AS SEPARATE PAY ITEMS. THESE ITEMS INCLUDE BUT ARE NOT LIMITED TO EXCAVATION OF CULVERT CONSTRUCTION, SUITABLE PIPE BEDDING, BENTONITE IF NEEDED FOR SEALING CSPs, AND RIP RAP ARMORING.

LYNX CREEK ROAD MAINTENANCE

| SHEET NUMBER | TOTAL SHEETS |
|-----------------|-----------------|
| 3 | 9 |

Road Log

Road #4445

| Station or Mile Post | Pay Item Number | Description of Work | Station or Mile Post | Pay Item Number | Description of Work |
|----------------------|-----------------|--|----------------------|-----------------|-------------------------------------|
| ROAD #4445 | | | 21.41 | 20420 | RECONSTRUCT DRAINAGE DIP |
| 23.06 | | BEGIN ROAD #4445 WORK. | | | |
| | | JUNCTION WITH ROAD #331, APPROXIMATELY 8.6 MILES FROM THE JUNCTION OF RIVER ROAD AND US HIGHWAY 2. NOTE: MILEPOSTS GO IN DECREASING ORDER. | 21.35 | 20482 | REMOVE DRAINAGE DIP |
| | 23050 | BEGIN ROADWAY BRUSHING | | | |
| | 30357 | BEGIN ROADWAY RECONDITIONING | 21.32 | 20420 | CONSTRUCT DRAINAGE DIP |
| | | | | | |
| 22.97 | 20420 | CONSTRUCT DRAINAGE DIP | 21.30 | 20482 | REMOVE DRAINAGE DIP |
| | | | | | |
| 22.92 | 20420 | RECONSTRUCT DRAINAGE DIP | 21.27 | 20420 | CONSTRUCT DRAINAGE DIP |
| | | | | | |
| 22.78 | 20420 | CONSTRUCT DRAINAGE DIP | 21.20 | 20420 | CONSTRUCT DRAINAGE DIP |
| | | | | | |
| 22.68 | 20420 | CONSTRUCT DRAINAGE DIP | 21.11 | | EXISTING SWITCHBACK |
| | | | | | |
| 22.58 | 20420 | CONSTRUCT DRAINAGE DIP | 21.07 | 20420 | RECONSTRUCT DRAINAGE DIP |
| | | | | | DONT INTERCEPT DITCHLINE, DRAIN OUT |
| 22.32 | 20420 | RECONSTRUCT DRAINAGE DIP | | | |
| | | | 21.00 | 20420 | CONSTRUCT DRAINAGE DIP |
| | | | | | |
| 22.24 | 20420 | CONSTRUCT DRAINAGE DIP | 20.93 | | EXISTING SWITCHBACK |
| | | | | | |
| 22.12 | 20420 | RECONSTRUCT DRAINAGE DIP | 20.87 | 20420 | RECONSTRUCT DRAINAGE DIP |
| | | | | | |
| 21.88 | 20420 | CONSTRUCT DRAINAGE DIP | 20.78 | 20420 | CONSTRUCT DRAINAGE DIP |
| | | | | | |
| 21.78 | 20420 | RECONSTRUCT DRAINAGE DIP | 20.73 | 20420 | CONSTRUCT DRAINAGE DIP |
| | | | | 20301 | REMOVE SURFACE WATER DEFLECTOR |
| 21.68 | 20420 | CONSTRUCT DRAINAGE DIP | | | |
| | | | 20.34 | 30357 | END ROADWAY RECONDITIONING |
| 21.68 | 20420 | CONSTRUCT DRAINAGE DIP | | | |
| | | | 20.25 | 20420 | RECONSTRUCT DRAINAGE DIP |
| 21.47 | 20420 | RECONSTRUCT DRAINAGE DIP | | | |
| | | | | | |

LYNX CREEK ROAD MAINTENANCE

Note:
Mileages are measured electronically and do not
match mile posts marked on the ground.

| SHEET NUMBER | TOTAL SHEETS |
|-----------------|-----------------|
| 4 | 9 |

Road Log

Road #4445 (continued)

| Station or Mile Post | Pay Item Number | Description of Work | Station or Mile Post | Pay Item Number | Description of Work |
|----------------------|-----------------|--|----------------------|-----------------|---|
| 20.23 | 20419 | CONSTRUCT 100' BERM FROM EXISTING ROADWAY SURFACING ALONG OUTSIDE ROAD SHOULDER TO PREVENT RUNOFF FROM ENTERING STREAM. | | 60250 | INSTALL 58' OF NEW 24" CSP. (TYPE 1 CONSTRUCTION) |
| | 30357 | RECONDITION ROADWAY FOR LENGTH OF NEWLY CONSTRUCTED BERM. | | | END ROAD #4445 WORK. |
| 19.58 | 20301 | REMOVE EXISTING 24" WOOD STAVE CULVERT AND DISPOSE OFF FOREST. | 18.23 | 30357 | BEGIN ROADWAY RECONDITIONING |
| | 60253 | INSTALL 54' OF NEW 42" x 29" CSP. (TYPE 1 CONSTRUCTION) | | 20420 | RECONSTRUCT DRAINAGE DIP |
| | 30801 | HAUL AND PLACE 10 CY OF ROADWAY AGGREGATE, 4" THICK, CENTERED OVER CULVERT EXCAVATION. | 18.19 | 20420 | RECONSTRUCT DRAINAGE DIP |
| 19.30 | 20420 | CONSTRUCT DRAINAGE DIP | 18.12 | 20420 | RECONSTRUCT DRAINAGE DIP |
| 19.26 | 20301 | REMOVE EXISTING 18" WOOD STAVE CULVERT AND DISPOSE OFF FOREST. | 18.08 | | JUNCTION W/ ROAD #4439 |
| | 60253 | INSTALL 46' OF NEW 24" CSP. (TYPE 1 CONSTRUCTION) | 18.05 | 20420 | RECONSTRUCT DRAINAGE DIP |
| | 30801 | HAUL AND PLACE 10 CY OF ROADWAY AGGREGATE, 4" THICK, CENTERED OVER CULVERT EXCAVATION. | 17.77 | 20420 | RECONSTRUCT DRAINAGE DIP |
| 19.22 | 30801 | HAUL AND PLACE 20 CY OF ROADWAY AGGREGATE TO RAISE GRADE OVER EXISTING MAIN LYNX CREEK CROSSING. TO BE CENTERED OVER EXISTING CSP. | 17.68 | 20420 | RECONSTRUCT DRAINAGE DIP |
| 19.19 | 20419 | CONSTRUCT 250' DITCH ALONG INSIDE EDGE OF ROAD. ENSURE DITCH WILL DRAIN INTO NEW 18" CSP AND NOT INTO STREAM CHANNEL. | 17.60 | 20420 | RECONSTRUCT DRAINAGE DIP |
| | 60253 | INSTALL 38' OF NEW 18" CSP. (TYPE 2 CONSTRUCTION) | 17.51 | 20420 | RECONSTRUCT DRAINAGE DIP |
| | 30357 | RECONDITION ROADWAY FOR LENGTH OF NEWLY CONSTRUCTED DITCH. | 17.44 | 20420 | RECONSTRUCT DRAINAGE DIP |
| | 30801 | HAUL AND PLACE 10 CY OF ROADWAY AGGREGATE, 4" THICK, CENTERED OVER CULVERT EXCAVATION. | | | |
| 19.03 | 20420 | CONSTRUCT DRAINAGE DIP | 17.38 | | EXISTING SWITCHBACK |
| 18.99 | 20301 | REMOVE EXISTING 18" WOOD STAVE CULVERT AND DISPOSE OFF FOREST. | 17.35 | 20420 | RECONSTRUCT DRAINAGE DIP |
| | 60250 | INSTALL 58' OF NEW 24" CSP. (TYPE 1 CONSTRUCTION) | 17.30 | | EXISTING SWITCHBACK |
| | 30801 | HAUL AND PLACE 10 CY OF ROADWAY AGGREGATE, 4" THICK, CENTERED OVER CULVERT EXCAVATION. | 17.26 | 20420 | RECONSTRUCT DRAINAGE DIP |
| 17.48 | 20301 | REMOVE EXISTING 18" WOOD STAVE CULVERT AND DISPOSE OFF FOREST. | 17.15 | 20420 | RECONSTRUCT DRAINAGE DIP |

LYNX CREEK ROAD MAINTENANCE

Note: Miles are measured electronically and do not match Mile Posts marked on the ground.

Road Log

Road #4445 (continued)

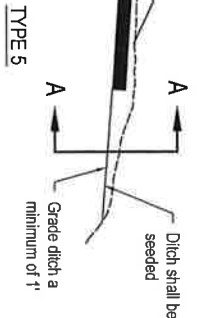
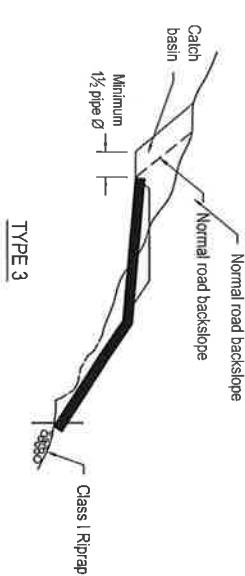
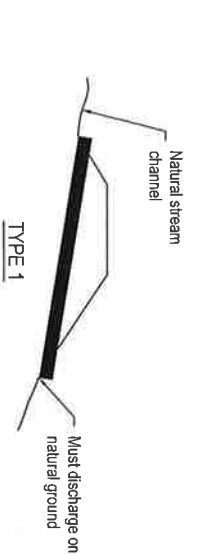
[illegible]

THIS PAGE INTENTIONALLY LEFT BLANK

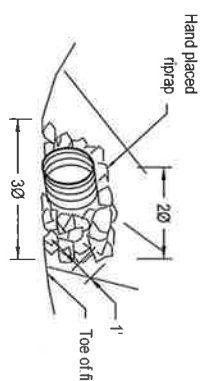
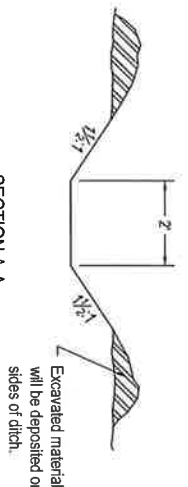
Note:
Mileages are measured electronically and do not match Mile Posts marked on the ground.

LYNX CREEK ROAD MAINTENANCE

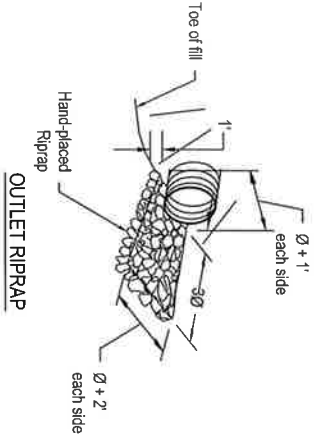
Culvert Construction Detail



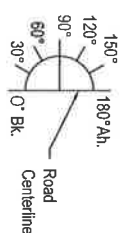
SECTION A-A



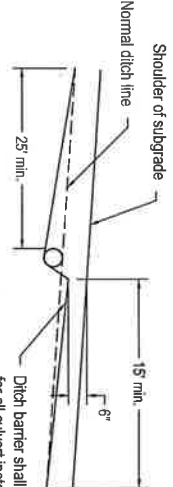
INLET RIPRAP FOR TYPE 1 INSTALLATION



OUTLET RIPRAP

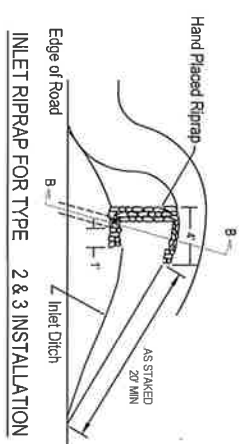


CULVERT SKEW

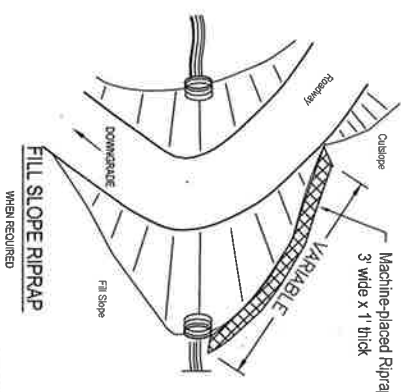
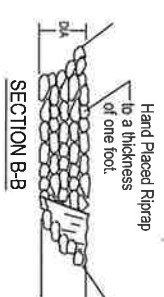


DITCH BLOCK DETAIL

Ditch barrier shall be installed for all culvert installations where grade of ditch allows water to flow past culvert inlet.



INLET RIPRAP FOR TYPE 2 & 3 INSTALLATION

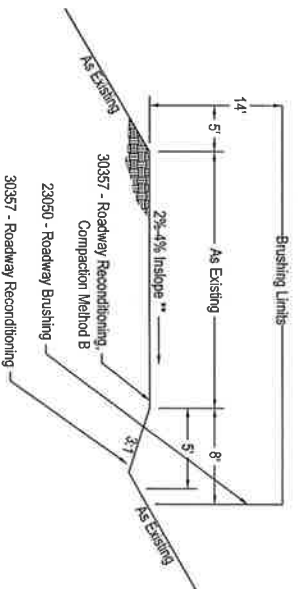


FILL SLOPE RIPRAP WHEN REQUIRED

UPPER LYNX CREEK WOOD STAVE CULVERT REPLACEMENT

| SHEET NUMBER | TOTAL SHEETS |
|--------------|--------------|
| 7 | 9 |

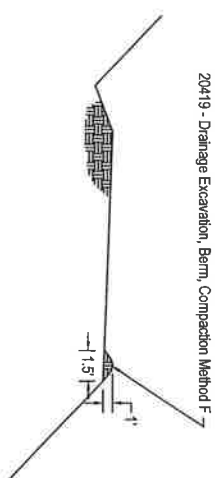
Typical Section & Berm Details



**Note: If surface is crowned or outskaped, maintain existing profile at 2%-4%. Typical ditch depth is 1'; new ditch depth shall be 1'

TYPICAL SECTION

NOT TO SCALE



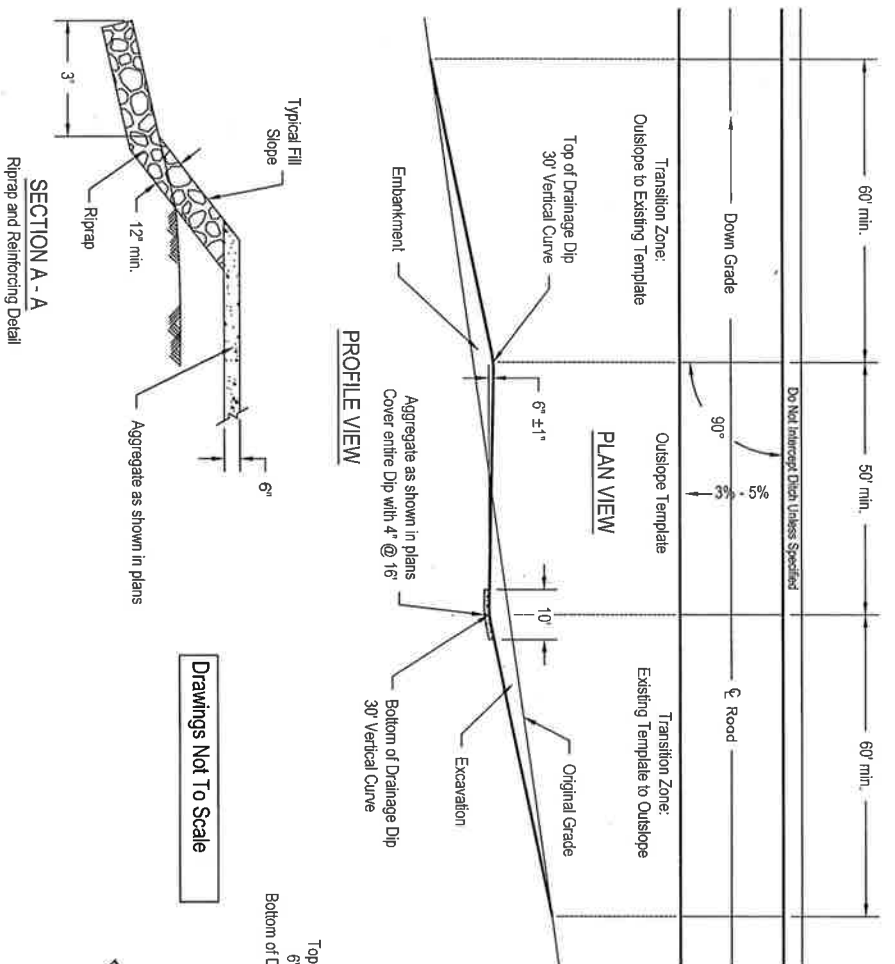
BERM DETAIL

NOT TO SCALE

LYNX CREEK ROAD MAINTENANCE

| SHEET | TOTAL |
|--------|--------|
| NUMBER | SHEETS |
| 8 | 9 |

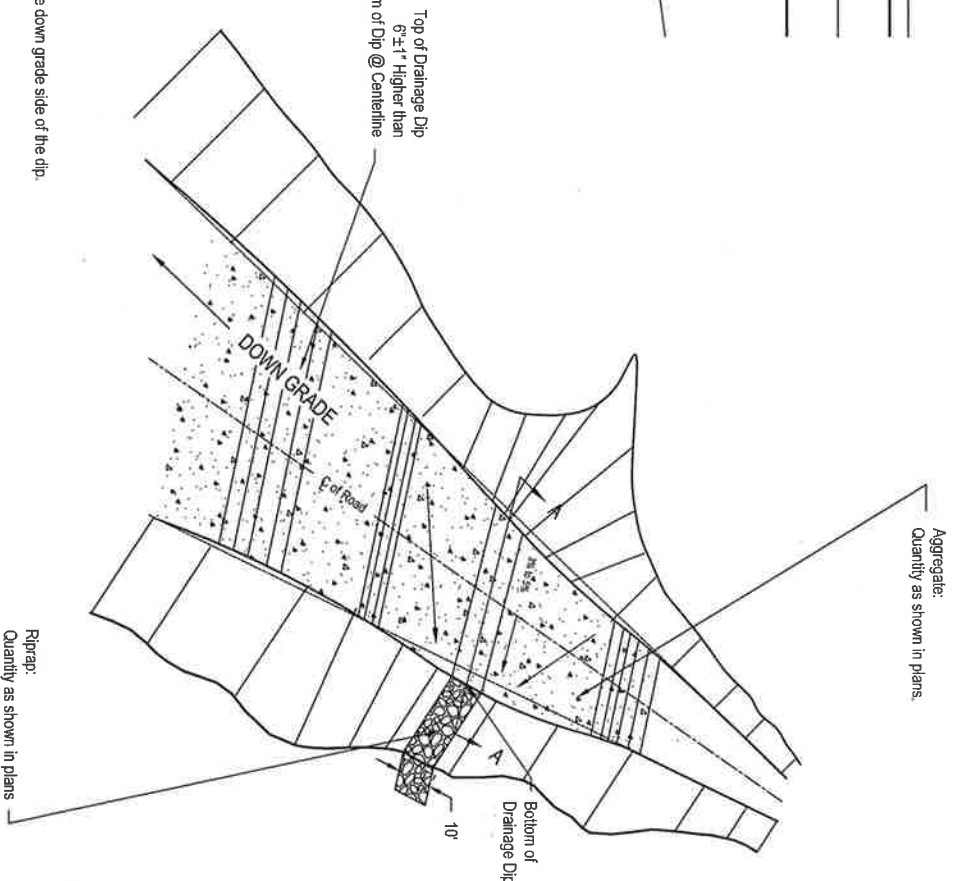
Drain Dip Detail



Drawings Not To Scale

Notes:

- Excavation below the existing grade line will be used as embankment on the down grade side of the dip.
- All disturbances shall be kept within the limits of the Drainage Dip.
- Aggregate, Dip Reinforcement, or Riprap will only be required when specified in the Drainage Listing or Reconstruction Log.



LYNX CREEK ROAD MAINTENANCE

| SHEET NUMBER | TOTAL SHEETS |
|--------------|--------------|
| 9 | 9 |

(Timber Sale)

| | |
|----------------|-----|
| Length (Miles) | 6.6 |
|----------------|-----|

[illegible]

Engineer's Estimate
(Timber Sale)

Timber Sale Mandatory Lynx Creek Road Maintenance
Road Name Lynx Creek

Road No. 4445
Length (Miles) 6.6

| Item Number | Description | Method of Meas. | Unit | Quantity | Unit Price | Total |
|----------------|-------------|--------------------|------|----------|------------|-------|
|----------------|-------------|--------------------|------|----------|------------|-------|

SUB-TOTAL: \$ 63,890.28

TOTAL ALL ROADS: \$ 63,890.28